



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,530	01/24/2002	Leonard L. Diaddario, JR.	PVO 2 0009	4334

7590 07/14/2005

Scott A. McCollister
Fay, Sharpe, Fagan, Minnich & McKee, LLP
7th Floor
1100 Superior Avenue
Cleveland, OH 44114-2518

EXAMINER

ZHENG, LOIS L

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,530

Applicant(s)

DIADDARIO, ET AL.

Examiner

Lois Zheng

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 2, 6, 7 and 11 is/are allowed.
- 6) ☒ Claim(s) 3-5 and 8-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1, 8, 11-12 and 16 are amended in view of the amendment filed 21 April 2005. Therefore, claims 1-34 remain under examination.

Status of Previous Rejections

2. Rejection of claims 16-20 and 24 under 35 U.S.C. 103(a) as being unpatentable over Crotty US 4,578,122(Crotty) in view of Kasahara et al. US 4,200,475(Kasahara) are withdrawn in view of the amendments filed 21 April 2005.

New rejection grounds are presented below.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3-5, 8-10 and 12-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection ground for the instant claims are maintained for the same reason as stated in paragraph 6 of the previous Non-Final Office Action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1742

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi et al US 6,280,535 B2(Miyoshi), in view of Crotty US 4,578,122(Crotty) and further in view of Kasahara et al. US 4,200,475(Kasahara).

Miyoshi discloses a conversion coating process comprising plating a steel sheet with lead-containing zinc and treating the galvanized steel sheet with a chromium conversion coating comprising chromium(III) and chromium(VI) ions, nitrate ions and cobalt ions(abstract, col. 3 lines 24-38 and 46-53). Miyoshi further teaches that the molar ratio of nitrate ions to chromium ions is 0.1-1.6(abstract, col. 3 lines 33-34) and the molar ratio of cobalt ions to chromium ions is 0.04-2.

Since Miyoshi teaches that the galvanizing bath only contains 0.05-0.3wt% of lead and 0.1-0.3wt% of aluminum, one of ordinary skill in the art would have found it obvious to apply the same coating solution to galvanizing bath containing only zinc with expected success.

However, Miyoshi does not explicitly teach

- a. the coating composition is substantially free of chromium(VI) ions,
- b. the rinsing step after coating,
- c. the exposing of article to a dye solution and
- d. the last rinsing step.

As stated in paragraph 8 of the previous Non-Final Office Action, Crotty teaches a metal treatment process comprising treating a galvanized metal substrate with a coating solution comprising chromium(III), cobal and nitrate ions. Crotty also teaches

Art Unit: 1742

that chromium(III) ions can be used to replace chromium(VI) ions in a chromium passivating solution(col. 1 lines 14-19) . Therefore, it would have been obvious to one of ordinary skill in the art to have replaced chromium(VI) ions in the coating solution of Miyoshi with chromium(III) ions as taught by Crotty in order to take advantage of the increased simplicity and efficiency in treating waste effluents containing chromium(III) as taught by Crotty(col. 1 lines 14-19).

In addition, Crotty further teaches rinsing the passivated galvanized metal surface water after the coating solution is applied(See paragraph 8 of the previous Non-Final Office Action). Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the water rinsing step as taught by Crotty after the coating application of Miyoshi in order to remove any residual coating solution on the metal surface as taught by Crotty(col. 8 lines 20-22).

As stated in paragraph 8 of the previous Non-final Office Action, Kasahara teaches a 0.5-10 minutes application of a dye solution to a zinc base alloy coated with a chromium containing solution and the subsequent rinsing of the article. Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the application of dye solution and the subsequent rinsing as taught by Kasahara after the coating process of Miyoshi in view of Crotty in order to decoratively finished the metal product as taught by Kasahara(col. 1 lines 22-28).

Therefore, the instant claim 16 does not distinguish from the teachings of Miuoshi in view of Crotty and Kasahara.

Regarding instant claim 17, since Miyoshi does not provide specific coating temperature requirement, one of ordinary skill in the art would have found it obvious that Miyoshi's coating solution can be applied at room temperature(i.e. 20-25°C), which reads on the claimed temperature of about 20-40°C.

Regarding instant claim 18, even though Miyoshi does not explicitly teach the claimed coating time of about 25-75 seconds, it would have been obvious to one of ordinary skill in the art to have routinely optimized the coating time to in order to achieve the desired coating thickness.

Regarding instant claims 19 and 24, since no specific rinsing temperature requirement is provided by Miyoshi, one of ordinary skill in the art would have found it obvious to rinse the coated article at room temperature(i.e. 20-25°C), which reads on the claimed 20-40°C and 20-60°C as recited in instant claims 19 and 24 respectively.

Regarding instant claim 20, the dye treatment time of 0.5 – 10 minutes as taught by Miyoshi in view of Crotty and Kasahara overlaps the 5-40 sec dye treatment time as claimed. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed treatment time duration range from the disclosed range of Miyoshi in view of Crotty and Kasahara would have been obvious to one skilled in the art since Miyoshi in view of Crotty and Kasahara teach the same utilities in their disclosed treatment time duration range.

7. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi in view of Crotty and Kasahara, and further in view of King US 2,393,640(King).

The teachings of Miyoshi, Crotty and Kasahara are discussed in paragraph 6 above. However, Miyoshi in view of Crotty and Kasahara fail to teach explicitly the claimed 20°C – 40°C dye treatment temperature and the claimed about 9-12 pH value as recited in instant claims 21 and 22.

As stated in paragraph 9 of the previous Non Final Office Action, King teaches a method for coloring non-ferrous metal surfaces such as galvanized metal by treating the metal surfaces with dye baths(page 1, col. 1 lines 1-3, lines 48-54). King further teaches that the dye solution treatment takes about 1 to about 10 minutes at bath temperature of about 20°C to about 90°C(page 1, col. 2 lines 32-36).

With respect to claim 21 of the instant invention, it would have been obvious to one of ordinary skill in the art to have incorporated the King's dye bath treatment step into the coating process of Miyoshi in view of Crotty and Kasahara in order to obtain continuous color coverage, faithfulness of color, opacity control, permanent retention and adherence of the dye without fading as taught by King(page 1, col. 1 lines 4-8).

In addition, the dye bath temperature of about 20°C to about 90°C as taught by Miyoshi in view of Crotty, Kasahara and King overlaps the claimed 20°C – 40°C dye treatment temperature range as recited in instant claims 21. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed dye solution treatment temperature range from the disclosed range of Miyoshi in view of Crotty, Kasahara and King would have been obvious to one skilled in the art since Miyoshi in view of Crotty, Kasahara and King teach the same utilities in their disclosed dye solution treatment temperature range.

With respect to claim 22 of the instant invention, King further teaches that the dye solution pH is about 3.0 to about 8.0 (page 1, col. 2 lines 32-33). Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the pH range in the dye bath of King into the dye solution of Miyoshi in view of Crotty and Kasahara in order to achieve the high quality color finish as taught by King.

Furthermore, about 8 pH value of Miyoshi in view of Crotty, Kasahara and King read on the claimed lower pH value of about 9 as recited in instant claim 22. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed dye solution pH range from the disclosed range of Miyoshi in view of Crotty, Kasahara and King would have been obvious to one skilled in the art since Miyoshi in view of Crotty, Kasahara and King teach the same utilities in their disclosed dye solution pH range.

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi in view of Crotty and Kasahara, and further in view of Shinozaki et al. US 5,200,292 (Shinozaki).

The teachings of Miyoshi, Crotty and Kasahara are discussed in paragraph 7 above.

Kasahara further teaches that the dye can be an organic dye such as an acid dye or a mordant dye, which encompass the claimed Mordant diazo dye as recited in instant claim 23. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed Mordant diazo dye from the disclosed organic dye of Miyoshi in view of Crotty and Kasahara would have been obvious to one skilled in the art since

Art Unit: 1742

Miyoshi in view of Crotty and Kasahara teach the same utilities in their disclosed Mordant diazo dye.

However, Miyoshi in view of Crotty and Kasahara do not explicitly teach the claimed borate ions in the dye solution as recited in instant claim 23.

As stated in paragraph 10 of the previous Non-Final Office Action, Shinozaki teaches a light-sensitive composition comprising an aromatic diazo compound and a cationic dye/borate anion complex (abstract, col. 2 line 53-col. 3 line 7)

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the addition of borate as taught by Shinozaki to the dye solution of Miyoshi in view of Crotty and Kasahara in order to improve the light sensitivity as taught by Shinozaki (col. 2 lines 38-42).

Allowable Subject Matter

1. Claims 1-2, 6-7 and 11 are allowed.
2. Claims 8, 10 and 12-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

3. Applicant's arguments with respect to claims 16-24 have been considered but are moot in view of the new ground(s) of rejection.
4. Applicant's arguments filed 21 April have been fully considered but they are not persuasive.

In the remarks, applicant argues that sulfate ions and fluoride ions are not oxidizing agents. The examiner respectfully disagrees. The claims of the instant invention containing open language "comprising", allowing additional chemicals to be present in the coating solution. The examiner's position is that ability of sulfate and fluoride ions as oxidizing agents is relative depending on the other chemical involved in the oxidization-reduction reaction. Sulfate and fluoride ions are capable of functioning as a oxidizing agent when reacting with easily oxidizable material.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1742

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ


ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700